# 4 Operating the Display

The display shows the current operating data of the inverter (e.g. status, power, input voltage) and errors or disturbances.

The displayed operating data is updated every 5 seconds. The backlight shuts off automatically after 2 minutes.

You can operate the display by tapping on the enclosure lid:

- To activate the backlight, tap once.
- To move on from a displayed message, tap once.
- To display the serial number and designation of the inverter, the firmware version and the status of the Power Balancer (if active) in succession during operation, tap twice in succession.

# 5 Troubleshooting

## 5.1 LED Signals

The LEDs display the operating state of the inverter and indicate the messages in the display via various blink codes.

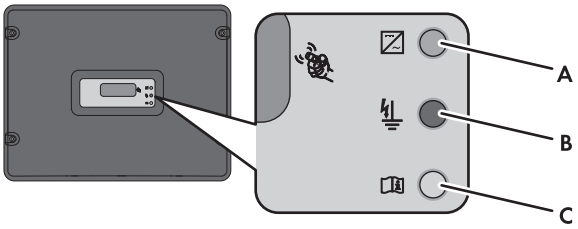


Figure 7: Position of the LEDs

| Position | Description | Status | Explanation |
|---|---|---|---|
| A | Green LED | Glowing | Operation<br>Indicates normal operation of the inverter. |
| | | Blinks 3 times per second | Start<br>The inverter is calibrating internal systems. The calibration lasts 10 seconds and the inverter begins normal operation. |
| | | | Stop<br>The inverter has been set to stop mode manually. |
| | | Blinks once per second | Waiting<br>The inverter is checking the conditions for grid connection. |

| Position | Description | Status | Explanation |
|---|---|---|---|
| | | Goes out briefly once per second | Derating<br>At temperatures above +113°F (+45°C), the inverter continues to operate but reduces the power so as to protect the internal components from overheating.<br>**Corrective measures:**<br>• Ensure that the inverter has sufficient ventilation.<br>• Ensure that air is emerging from the fan enclosure. If no air is emerging from the fan enclosure, clean the fan enclosure (see section 6.4). |
| B | Red LED | Glowing | Grounding fuse tripped<br>The grounding fuse has been tripped or is missing. The grounding fuse protects the PV plant if a ground fault is present in the PV array.<br>**Corrective measures:**<br>• Contact installer. |
| C | Yellow LED | Glowing | Control system error<br>The inverter is no longer feeding into the power distribution grid.<br>**Corrective measures:**<br>• Contact installer. |
| | | Blinking | AFCI self-test<br>The inverter is performing an AFCI self-test. |
| | | Glows for 5 s, goes out for 3 s, blinks twice | Grid failure<br>The power distribution grid has failed or the AC miniature circuit-breaker has been triggered.<br>**Corrective measures:**<br>• Ensure that there is no power distribution grid failure.<br>• If there is no power distribution grid failure, contact the installer. |

| Position | Description | Status | Explanation |
|---|---|---|---|
| | | Glows for 5 s, goes out for 3 s, blinks 4 times | High DC input voltage<br>The inverter has detected a DC input voltage that is too high for safe operation.<br>**Corrective measures:**<br>• Contact installer. |
| | | Glows for 5 s, goes out for 3 s, blinks 5 times | Disturbance<br>The inverter has detected an internal error that interrupts normal operation.<br>**Corrective measures:**<br>• Contact installer. |
| B + C | Red LED + yellow LED | Glowing | Ground fault<br>The inverter has detected a ground fault. The inverter will not restart automatically after detecting a ground fault.<br>**Corrective measures:**<br>• Contact installer. |
| A + B + C | All LEDs | Glowing | Initialization<br>The inverter is initializing. The available DC input current of the PV array is insufficient for feed-in operation. Data transmission is not possible during initialization. |
| A + B + C | All LEDs | None glowing | Standby<br>The inverter is in standby mode. The input voltage is too low for operation. |

## 5.2 Measurement Channels

The measured values of the inverter are shown on the display in the measurement channels. In addition, you can read out a variety of measurement channels and messages from the inverter using special communication devices (e.g. Sunny WebBox) or a PC with the relevant software (e.g. Sunny Explorer).

| Measurement channel | Explanation |
|---|---|
| CO2 saved | Amount of $CO_2$ saved during the operating time |
| E-Total | Total energy yield |
| Error | Description of error |
| Event-Cnt | Number of events |
| Fac | Power frequency |
| Grid Type | Type of power distribution grid to which the inverter is connected |
| h-on | Total operating hours |
| h-Total | Total number of operating hours in feed-in operation |
| I-dif | Residual current |
| Iac | Line current |
| Ipv | DC input current |
| Max Temperature | Maximum temperature measured at IGBT module |
| Max Vpv | Maximum DC input voltage |
| Mode | Current operating mode |
| Pac | Power fed into the power distribution grid |
| Power On | Total system start-up counter |
| Serial Number | Inverter serial number |
| Temperature | Temperature measured at IGBT module |
| Vac | Line voltage L1 - L2 |
| Vac L1 | Line voltage L1 - N |
| Vac L2 | Line voltage L2 - N |
| Vpv | DC input voltage |
| Vpv-PE | Direct voltage to ground (for troubleshooting PV ground faults) |
| Vpv Setpoint | MPP tracking DC target voltage |